APHIS Factsheet

Plant Protection and Quarantine

December 2003

Asian Longhorned Beetle *(Anoplophora glabripennis)*

The Asian longhorned beetle's (ALB) introduction to the United States has earned it the title of pest both here and in its home country of China. The beetle is a serious threat to hardwood trees and has no known natural predator in the United States. If the Asian longhorned beetle becomes established here, it has the potential to cause more damage than Dutch elm disease, chestnut blight, and gypsy moths combined, destroying millions of acres of America's treasured hardwoods, including national forests and backyard trees. The beetle has the potential to damage such industries as lumber, maple syrup, nursery, commercial fruit, and tourism accumulating over $41 billion in losses.

The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service's (APHIS) eradication efforts and current quarantines confine ALB infestations to Chicago, New York, and Jersey City, NJ.

Background

Determined by USDA officials to have entered the United States inside solid wood packing material (SWPM) from China, the Asian longhorned beetle was first discovered in 1996 in the Greenpoint neighborhood of Brooklyn, NY. Within weeks, another infestation was found on Long Island in Amityville, NY, after officials learned that infested wood had been moved from Greenpoint to Amityville.

In 1998, despite USDA's national ALB pest alert campaign, a separate infestation was discovered in the Ravenswood area of Chicago. This discovery prompted APHIS to amend its existing quarantine of wood movement in infested areas and place additional restrictions on importing solid wood packing material into the United States from China and Hong Kong.

Most recently, in October 2002, ALB was spotted in Jersey City, NJ. This discovery marks the first time since 1998 that the invasive exotic pest has been seen outside the quarantined regions of Illinois and New York.

Identification

The ALB is about 1 to 1 1/2 inches in length, black and shiny with white spots, and with distinguishable antennae that are banded with black and white. They attack many different hardwood trees, including maple (Norway, sugar, silver, and red), birch, horse chestnut, poplar, willow, elm, ash, and black locust.

The female ALB chews depressions (oviposition sites) in the bark of trees to lay eggs. A single female beetle can lay from 35 to 90 eggs. Hatching within 10 to 15 days, the worm–like immature larvae tunnel under tree bark and bore into healthy hardwood trees. The beetle larvae feed on living tree tissue during the fall and winter and, after pupating, emerge through exit holes during the spring. After emerging, adult beetles feed on tree exteriors for 2 to 3 days, then mate. Adult beetles remain active only during summer and early fall months before perishing—completing a 1–year life cycle.

Mobility

Since beetle larvae live deep inside trees the majority of the year, they can easily and unknowingly be moved in firewood, live trees, or fallen timber. ALB more commonly spread by natural means; under their own power they can fly distances greater than 400 yards. Migration may also depend on the abundance of suitable host materials (i.e., hardwood trees).

Damage to Trees

After maturing, ALB leave behind deep, perfectly round exit holes somewhat larger than the diameter of a pencil. Tree exit holes may ooze sap, and deposits of frass (insect waste and sawdust) may collect at tree trunk and tree limb bases. Egg deposit sites can be found by looking for dime–sized, dimpled impressions in tree bark.

Unseasonable yellowing or drooping of leaves when the weather has not been especially dry are also signs that ALB is present. Leaf symptoms show up when the immature insects, growing inside the tree, have bored through tissue that carry water (xylem) from tree roots and nutrients (phloem) from the leafy canopy above. Once the pest has sufficiently disrupted those pathways, the infected tree will die.

Detecting an Infestation

APHIS works closely with many agencies and resources to inspect for and detect ALB, including the Forest Service (FS), the Agricultural Marketing Service, and the U.S. Department of the Interior's Bureau of Land Management (BLM). Other cooperators include New York State Department of Agriculture and Markets, New York City Department of Parks and Recreation, Illinois Department of Agriculture, Chicago Department of Streets and Sanitation, Chicago Bureau of Forestry, New Jersey Department of Agriculture, New Jersey Department of Environmental Protection, and privately contracted tree service professionals.

ALB inspectors use many methods and resources to conduct tree surveys. Aerial tree inspections are performed by trained professionals using bucket trucks to peer into trees from above. FS and BLM's smokejumpers (forest firefighters) climb trees in otherwise inaccessible areas to scrupulously search for signs of an infestation.

Many interest groups and organizations voluntarily assist inspectors by searching trees from the ground; however, anyone with a keen eye and set of binoculars can contribute to this effort.

Increasing Public Awareness

Although conventional communication methods such as newspaper and television are effective in informing the public, APHIS also works cooperatively with many other groups to battle the beetle. Groups such as New York ReLeaf, University of Vermont, and Trees New York assist APHIS with public outreach efforts. By distributing printed material and arranging public, community, or organizational forums, these groups and other special interest contributors broaden efforts to inform the public of this devastating pest.

APHIS continuously requests the assistance and cooperation of residents, business owners, and professionals in identifying, reporting, and providing assistance to the ALB eradication program. Citizens of New York, Chicago, and Jersey City, NJ, are encouraged to remain aware of signs of an infestation and current quarantine areas and regulations governing the sale and transport of tree–based products in and around restricted areas.

Eradication

Currently, the most effective method of eradicating the ALB is to cut, chip, or burn infested trees, replacing them with nonhost species. Cooperative research continues in the United States and Asia in an effort to find acceptable alternatives to tree removal.

Recently, the insecticide imidacloprid has presented good results in field applications and is increasingly being used in conjunction with other methods to protect trees and eradicate the pest. Traps and pheromones as methods of eradication have not displayed considerable promise, and more time is required to determine the impact of all eradication options.

Collectively, APHIS and New York, Illinois, and New Jersey State and local governments have invested more than $138 million to eradicate the ALB and prevent the loss of the combined 7 million trees in New York City, Chicago, and Jersey City, NJ.

APHIS primarily aids eradication efforts by imposing quarantines and conducting intensified visual inspections around confirmed sites to delimit infestations.

Protecting Ports of Entry

APHIS' Plant Protection and Quarantine (PPQ) officers diligently conduct visual inspections of high–risk cargoes and in high–risk areas, such as cargo distribution warehouses.

To further address the ALB problem at U.S. ports of entry, APHIS has issued pest alerts to ports–of–entry personnel, conducted outreach to local importers, and targeted high–risk importers and Chinese exporters for outreach and increased inspections. As part of a national survey, APHIS is focusing on cargo labeled for high–risk destinations (warehouses that have previously received cargoes found to be infested with beetles). The Agency conducts secondary inspections and surveys of the environs at these destinations.

Additionally, Federal regulations prohibiting the importation of SWPM from China and Hong Kong to the United States are in place, thwarting further ALB infestations via such hosts. By conducting extensive periodic inspections at ports of entry, targeting Chinese shipments with SWPM, APHIS inspectors work to detect wood–boring pests and locate problem importers.

The ALB is just one of a number of exotic pests that present a serious threat to U.S. trees. Spruce bark beetle *(Ips typographus)* and Mediterranean pine engraver beetle *(Orthotomicuserosus)* are two other nonnative wood-boring pests of concern. APHIS inspectors search for all such pests on imports of solid wood products and also on solid wood packing materials like pallets and crates.

Guarding our Borders

APHIS is working with the U.S. Department of Homeland Security inspectors at all U.S. ports of entry and in some foreign countries. These inspectors form the first line of defense against exotic plant and animal pests and diseases. All international passenger baggage, cargo, package mail, and conveyances are subject to inspection at these ports of entry.

By monitoring pests and diseases in other coun-

tries, APHIS analyzes threats to U.S. agriculture and develops import restrictions on commodities based on their risk of introducing harmful organisms. APHIS inspectors "preclear" high–risk commodities before they leave their country of origin. Domestic package mail and passengers bound from Hawaii or Puerto Rico to the U.S. mainland are inspected too.

APHIS also develops treatments and rapid response techniques to fight outbreaks of unwanted pests as well as detection and monitoring programs to ensure that foreign pests do not become established here. Regular surveys and trapping are done to detect the arrival of new pests or chart the movement of existing pest populations.

Additional Information

For more information regarding the ALB, reporting an infestation, solid wood packing material, Imidacloprid, or quarantine and regulations, please visit http://www.aphis.usda.gov/oa/alb/alb.html on the Internet.
